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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,049	03/02/2004	Xiaorong Wang	P03002US1A	2827
27885	7590	06/20/2006		EXAMINER
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			ASINOVSKY, OLGA	
			ART UNIT	PAPER NUMBER
			1711	

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/791,049	WANG ET AL.	
	Examiner Olga Asinovsky	Art Unit 1711	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 02 March 2004.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1-22 is/are pending in the application.  
 4a) Of the above claim(s) 1-9 and 18-22 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 10-17 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 02 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-9 are, drawn to a process for forming a nano-particle composition, classified in class 526, subclass 89.
  - II. Claims 10-17 are, drawn to a polymer nano-particle composition, classified in class 525, subclass 332.2.
  - III. Claims 18-22 are, drawn to a rubber composition, classified in class 525, subclass 331.7, 240-242.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process by using atom (or group) transfer radical polymerization (ATRP) technique.
3. Inventions of Groups I+II and Group III are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product, and the species are patentably distinct (MPEP § 806.05(j)). In the instant case, the

intermediate product is deemed to be useful as an adhesive or dispersant and the inventions are deemed patentably distinct because there is nothing on this record to show them to be obvious variants.

4. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
5. During a telephone conversation with Lawrence Chaletsky (for Meredith Palmer) on June 12-13, 2006 a provisional election was made with traverse to prosecute the invention of Group II, claim10-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-9 and 18-22 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

7. Claims 10 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A chemical formulation of an inner layer (b) is not clear in claim 10, because there is no definition for diblock polymer chains. The alkenylbenzene monomer can be selected as first monomer units for producing an outer layer; and an inner layer can also include the alkenylbenzene monomer units as second monomer units (see claim 13), therefore the formulation of diblock polymer chains is not clear. Also, the phrase "more of said second monomer units than said first monomer units" makes a polymer indefinite, since the term "more" does not show the range or limitation of the ingredients.

Claim 13 discloses the alkenylbenzene monomer units for the outer layer, and, the alkenylbenzene monomer units for the inner layer. The outer layer and the inner layer can be derived from the same aromatic hydrocarbons. The formulation of diblock polymer chains is not clear.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 10-15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Krom et al U.S. Patent 6,437,050.

Krom discloses a polymer nano-particle composition having less than about 100 nm, col. 1, line 44, and having a dispersity less than about 1.3, col. 2, line 15. The nano-

particle polymer is in the form of a core/shell structure, claim 1 at column 9. A core of polyalkenylbenzene is readable for being an inner layer in the present claims. A surface layer derived from polymerizing conjugated diene is readable for being an outer layer in the present claims. The polymer composition can be crosslinked, claim 4 at column 9. The nano-article polymer can be in the form of a diblock copolymer.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krom et al U.S. Patent 6,437,050 as applied to claims 10-15 and 17 above, and further in view of Coolbaugh et al U.S. Patent 5,399,629.

Krom does not disclose hydrogenating of conjugated diene monomer units.

Coolbaugh discloses a selective hydrogenation of a thermoplastic block copolymer elastomer based on conjugated diene monomers by using a hydrogenation catalyst.

It would have been obvious to one of ordinary skill in the art to produce a hydrogenated polyconjugated diene chain in Krom invention by using a hydrogenated catalyst as disclosed by Coolbaugh invention since both references disclose similar conjugated diene units.

***Double Patenting***

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 10-17 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,872,785. Although the conflicting claims are not identical, they are not patentably distinct from each other because the chemical formulation of a multi-layer nano-particle composition in claims 1-18 of Patent 6,872,785 is directly overlapping the chemical formulation of a polymer nanoparticle composition in the present claims. The difference between the present claims and claims 1-18 of Patent 6,872,785 is the requirement in the present claim 16 of a polydispersity index between about greater than 1.15 and 8.0. It would have been obvious to one of ordinary skill in the art to consider that a polydispersity index at the claimed level of at least 1.15 could be obtained for the same chemical formulation of said nanoparticle polymer composition in claims 1-18 of Patent

6,872,785, support of that can be found in the disclosure, as taken an evidence, at column 3, line 8.

***Claim Rejections - 35 USC § 103***

14. Claims 10-17 are rejected under 35 U.S.C. 103(a) as being obvious over Wang et al U.S. Patent 6,872,785.

The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2). See explanation in the paragraph 11 above.

The applicants submit the Information Disclosure Statements having in total 162 references including Patents and Publications of which the applicants are aware.

The examiner would like to point out that it has been held in the courts that the "applicant has [an] obligation to call the most pertinent prior patent to [the] attention of [the] Patent Office in a proper fashion." [Penn Yan Boats, Inc. V. Sea Lark Boats, Inc., et al. 175 USPQ 260 (DC SFla 1972)]. The examiner would appreciate the applicant identifying why the cited reference is pertinent including relevant portions of the document cited.

The search has been made by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.A

June 14, 2006



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